

“we deliver only quality goods as we care for nature”

AVAILABLE MATERIALS MAKES

- JINDAL STAINLESS LTD (JSL)
- ARCELOR
- ACRONI
- DKC
- ACERINOX
- SUMITOMO METALS
- NIPPON
- BAW STEEL
- ISMT
- M. S. L.
- JINDAL SAW
- HINDALCO
- REMI
- RATNAMANI
- SURAJ
- PRAKASH
- TUBACEX
- JFE STEEL CORPORATION
- WELSPUN
- DALMINE
- V & M
- BALCO
- NALCO

“Steel Makes The World Around us”

Heubach™
INTERNATIONAL
AN ISO 9001 : 2008 CERTIFIED COMPANY

Exporters , Stockists & Suppliers of :

Ferrous & Non-Ferrous Raw Materials :-

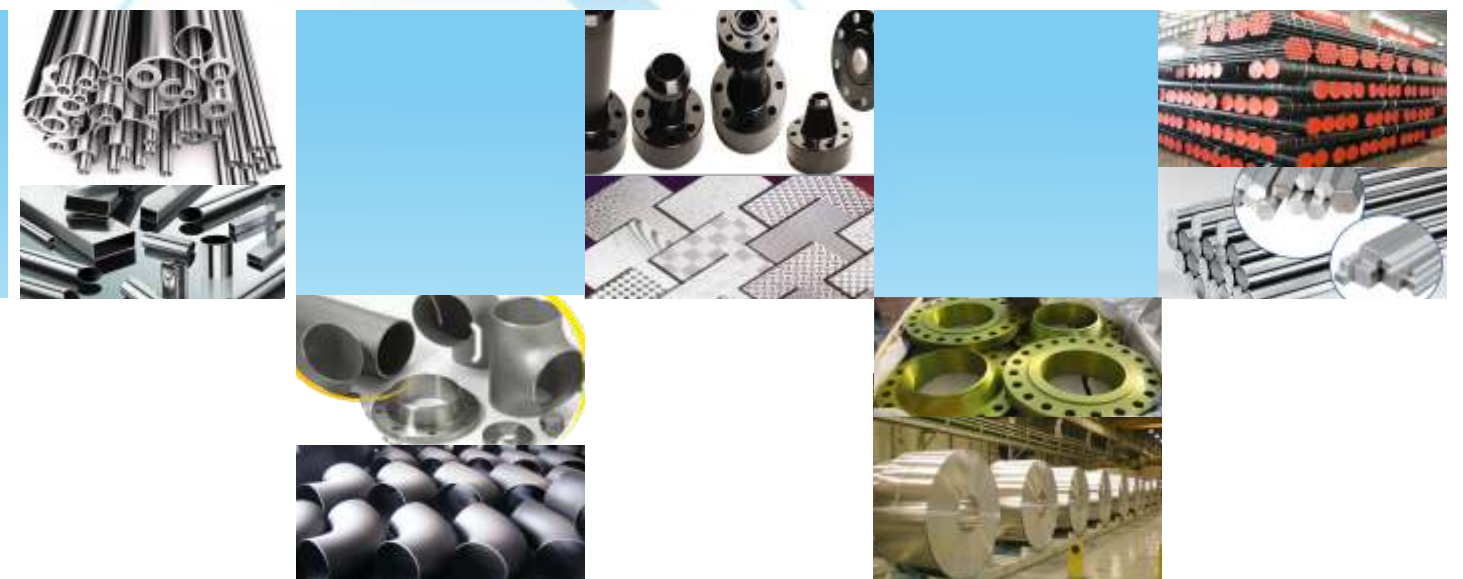
Stainless Steel, Alloy Steel , Carbon Steel & High Nickel Alloys
Sheets, Plates , Coils , Pipes & Tubes & All Types of Pipe fittings

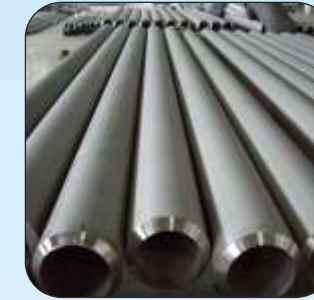
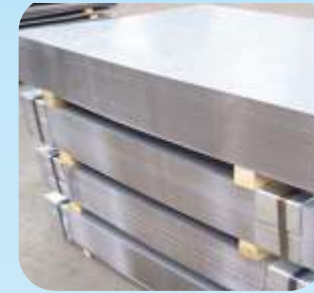
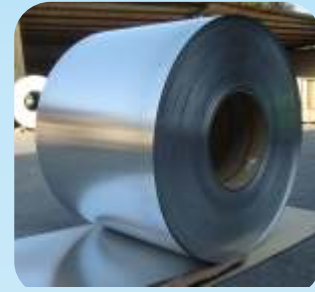
21, Manipar House, 1st Floor, 1st Parsiwada Lane,
Opp. V. P. Road Police Station, Mumbai - 400004.

+91-22-67438446 • +91-22-66581621 • +91-9987013449

- mahendra@heubachint.com / heubachmahendra@gmail.com

@ - www.heubachint.com
www.heubachint.in





Third Party

List of third party inspection agency with whom we work



COMPANY PROFILE

Heubach International has established itself as one of the pre-eminent position in the steel segment in India & is on its way to become a major global player

its headquarters in Mumbai-India, under the management of Mr. Mahendra Jain.

We take the pleasure to introduce ourselves as one the largest Manufacturer of pipes fitting items, Importers, Exporters, Stock Holders & suppliers for the following raw materials :

I Stainless Steel

I Alloy Steel

I Carbon Steel

I Non Ferrous Metal - Sheet, Plates, Coils, Tubes, Pipes, Rods, Wires, Flats, Structural, Fittings, Flanges etc.

Confirming to TP-202, 304, 304L, 316, 316Ti, 316L, 316S, 309, 310, 310 S, 321, 410, 904 L, Nickel, Monel, Inconel, Incoloy, Titanium & all high Nickel grades, All items in Brass, Copper, Aluminium, Carbon Steel, Mild steel & Boiler quality items.

We are successfully supplying to Chemicals, Fertilizer and Petrochemical industries, paper mills, Sugar mills & distillation plants, pumps & valve manufacturers, engineering, electrical & cement industries for their new projects, project expansion and routine maintenance, Continuous improvement is a way of life a HEUBACH our knowledge of international standard & specifications, expertise in workmanship and responsibilities towards customer are the main elements of our mission.

We have very ambitious plans to expand our activities and further building good source for improve quality and reduce costing with fastest delivery, We also supply these items especially Stainless Steel Sheets/Plates, Coils, Pipes to engineering industries who are engage in the manufacture and fabrication of process equipment.

We can supply the items even under third party inspection viz bureau veritas, D.N.V. H & G, kavernor power gas, Udhe India, EIL, Lloyds, Toyo, Chemtex, Cell, Tecnimont ICB & IBR etc.

As we are regularly maintaining bulk stock in every item, we can arrange supplies in time and that too at the most competitive rates. We shall be thankful to you to kindly enlist our name with your approved vendor list and favour us with your valuable enquiries against your regular requirements. We would appreciate to get your esteemed enquires and look forward to the pleasure receiving your valuable response.

The Organization has receiving a number of honorable awards in its remarkable business journey some of those esteemed awards are mentioned below.

“QUALITY EXCELLENCE AWARD”

“SUPER QUALITY CROWN AWARDS”

“THE BIZZ AWARDS 2014”

In today's environment change' is a welcome phenomenon. Change brings with it a sense of challenge, a need to push ahead. “HEUBACH” is geared to meet the challenging winds of change.

“Providing the best solutions in Steel”

mahendra@heubachint.com

www.heubachint.com

**STAINLESS STEEL PIPE DIMENSION AS PER ASTM AND
WEIGHT-KG. PER MTR. (ANSI B 36.19-1965)**

Nominal Bore		Outside Diameter mm	Schedule 5S		Schedule 10S		Schedule 40S		Schedule 80S		Schedule 160S		Schedule XXS	
mm	INCH		Wt mm	Weight (kg/mt)	Wt mm	Weight (kg/mt)	Wt mm	Weight (kg/mt)	Wt mm	Weight (kg/mt)	Wt mm	Weight (kg/mt)	Wt mm	Weight (kg/mt)
3	1/8	10.3	1.24	0.276	1.24	0.28	1.73	0.37	2.41	0.47	-	-	-	-
6	1/4	13.7	1.24	0.390	1.65	0.49	2.24	0.631	3.02	0.80	-	-	-	-
10	3/8	17.1	1.24	0.490	1.65	0.63	2.31	0.845	3.20	1.10	-	-	-	-
15	1/2	21.3	1.65	0.800	2.11	1.00	2.77	1.27	3.75	1.62	4.75	1.94	7.47	2.55
20	3/4	26.7	1.65	1.03	2.11	1.28	2.87	1.68	3.91	2.20	5.54	2.89	7.82	3.63
25	1	33.4	1.65	1.30	2.77	2.09	3.38	2.50	4.55	3.24	6.35	4.24	9.09	5.45
32	1.1/4	42.2	1.65	1.65	2.77	2.70	3.56	3.38	4.85	4.47	6.35	5.61	9.70	7.77
40	1.1/2	48.3	1.65	1.91	2.77	3.11	3.68	4.05	5.08	5.41	7.14	7.25	10.16	9.54
50	2	60.3	1.65	2.40	2.77	3.93	3.91	5.44	5.54	7.48	8.74	11.1	11.07	13.44
65	2.1/2	73.0	2.11	3.69	3.05	5.26	5.16	8.63	7.01	11.4	9.53	14.9	14.2	20.39
80	3	88.9	2.11	4.51	3.05	6.45	5.49	11.30	7.62	15.2	11.1	21.3	15.24	27.65
100	4	114.3	2.11	5.84	3.05	8.36	6.02	16.07	8.56	22.3	13.49	33.54	17.12	41.03
125	5	141.3	2.77	9.47	3.40	11.57	6.55	21.8	9.53	31.97	15.88	49.11	19.05	57.43
150	6	168.3	2.77	11.32	3.40	13.84	7.11	28.3	10.97	42.7	18.2	67.56	21.95	79.22
200	8	219.1	2.77	14.79	3.76	19.96	8.18	42.6	12.7	64.6	23.0	111.2	22.23	107.8
250	10	273.1	3.40	22.63	4.19	27.78	9.27	60.5	12.7	96.0	28.6	172.4	25.40	155.15
300	12	323.9	3.96	31.25	4.57	36.00	9.52	73.88	12.7	132.0	33.32	238.76	25.40	186.97
350	14	355.6	3.96	34.36	4.78	41.3	11.13	94.59	19.05	158.08	35.71	281.70	-	-
400	16	406.4	4.19	41.56	4.78	47.29	12.7	123.30	21.41	203.33	40.46	365.11	-	-
450	18	457.2	4.19	46.80	4.78	53.42	14.27	155.80	23.8	254.36	45.71	466.40	-	-
500	20	508.0	4.78	59.25	5.54	68.71	15.09	183.42	26.19	311.2	49.99	564.68	-	-
600	24	609.6	5.54	82.47	6.35	94.45	17.48	255.41	30.96	442.08	59.54	808.22	-	-
650	26	660.4			7.92	129.40	9.53	155.32	12.70	205.97	-	-	-	-
700	28	711.2			7.92	139.47	9.53	167.44	12.70	222.13	-	-	-	-
750	30	762.0	6.35	120.15	7.92	149.55	9.53	179.56	12.70	238.28	-	-	-	-
800	32	812.8	-	-	7.92	159.62	9.53	191.69	12.70	254.44	-	-	-	-
850	34	863.6	-	-	7.92	169.64	9.53	203.74	12.70	270.50	-	-	-	-
900	36	914.4	-	-	7.92	179.77	9.53	215.93	12.70	286.75	-	-	-	-

SWG DIMENSIONS AND WEIGHTS (SWG WALL THICKNESS)

Outside diameter		22 SWG 0.711mm	20SWG 0.914mm	18SWG 1.218mm	16SWG 1.625mm	14SWG 2.032mm	12SWG 2.641mm	11 SWG 2.946mm	10SWG 3.257mm
Inches	mm	Kg/m	Kg/m	Kg/m	Kg/m	Kg/m	Kg/m	Kg/m	Kg/m
1/4"	6.350	--	0.124	0.157	0.192	--	--	--	--
5/16"	7.950	--	0.161	0.205	0.257	--	--	--	--
3/8"	9.525	--	0.197	0.253	0.321	0.381	--	--	--
1/2"	12.700	0.213	0.270	0.350	0.451	0.543	0.665	0.720	--
5/8"	15.875	0.270	0.342	0.447	0.580	0.704	0.875	0.954	--
3/4"	19.050	--	0.415	0.544	0.709	0.866	1.090	1.190	1.290
7/8"	22.225	0.383	0.488	0.641	0.838	1.030	1.300	1.420	1.550
1"	25.400	0.440	0.560	0.738	0.967	1.190	1.510	1.660	1.800
1 1/4"	31.750	0.553	0.706	0.931	1.230	1.510	1.930	2.130	2.320
1 1/2"	38.100	0.666	0.851	1.130	1.480	1.840	2.350	2.590	2.840
1 3/4"	44.450	0.779	0.996	1.320	1.740	2.160	2.770	3.060	3.350
2"	50.800	0.892	1.140	1.510	2.000	2.480	3.190	3.530	3.870
2 1/2"	63.500	--	--	1.900	2.520	3.130	4.030	4.470	4.910
3"	76.200	--	--	2.290	3.030	3.770	4.870	5.400	5.640
3 1/2"	88.900	--	--	2.670	3.550	4.420	5.700	6.340	6.970
4"	101.600	--	--	3.060	4.070	5.070	6.540	7.280	8.010
5"	127.000	--	--	3.628	4.970	6.010	7.926	--	9.673
5 1/2"	139.700	--	--	4.000	5.481	6.624	8.736	--	10.675
6"	152.400	--	--	4.360	6.000	7.330	9.545	--	11.699
6 1/2"	161.100	--	--	4.720	6.480	7.840	10.419	--	12.720

HIGHLIGHTS OF ASTM SPECIFICATION FOR STAINLESS STEEL TUBES AND PIPES

Specification	Allowable Outside Diameter Variation in mm			Allowable wall Thickness Variation		Testing		
	Diameter	Over	Under	Over%	Under%	Over	Under	
ASTM - 270 Seamless & Welded Sanitary tubes	25.4 38.1 50.8 63.5 76.2 101.6	.05 .05 .05 .05 .08 .08	.20 .20 .28 .28 .30 .38	+12.5 +12.5 +12.5 +12.5 +12.5 +12.5	-12.5 -12.5 -12.5 -12.5 -12.5 -12.5	3.2 3.2 3.2 3.2 3.2 3.2	0 0 0 0 0 0	Reverse Flattering test 100% Hydrostatic test External Polish on all tubes Refer to ASTM A -270
ASTM A - 249 Welded Boiler Superheater Heat Exchanger and Condenser Tubes	Under 25.4 25.4-38.1 incl. 38.1 - 50.8 excl. 50.8 - 63.5 excl. 63.5 - 76.2 excl. 76.2 - 101.6 incl.	0.1016 0.1524 0.2032 0.2540 0.3048 0.3810	0.1016 0.1524 0.2032 0.2540 0.3048 0.3810	+10 +10 +10 +10 +10 +10	-10 -10 -10 -10 -10 -10	3.175 3.175 3.175 3.760 4.760 4.760	0 0 0 0 0 0	Tension Test, Flletting test Flare Test * Reverse Bend Test Hardness Test 100% Hydrostatic Test Reverse Flattering Test Refer to ASTM A -450 Whenever applicable
ASTM A - 312 Seamless & Welded Pipes	13.7- 48.3 incl. 48.3 - 114.3 incl. 114.3 - 220 incl.	0.40 0.76 1.59	0.79 0.79 0.79	Minimum Wall tubes 12.5% under nominal Wall Specification		6.4 6.4 6.4	0 0 0	Tension Test Flattening Test 100% Hydrostatic Test (Normally Random Lengths ordered)
ASTM A - 269 Seamless & Welded Tubes	Upto 12.7 12.7 - 38.1 excl. 38.1 - 88.9 excl. 88.9 - 139.7 excl. 139.7- 203.2 excl.	0.13 0.13 0.25 0.38 0.76	0.13 0.13 0.25 0.38 0.76	+15 +10 +10 +10 +10	-15 -10 -10 -10 -10	3.2 3.2 4.8 4.8 4.8	0 0 0 0 0	Tension Test Flange Test (Welded Only) Hardness Test Reverse Flattering Test (Welded Only) 100%Hydrostatic test Refer to ASTM A -269
ASTM A - 213 Seamless Boiler superheater and Heat Exchanger Tubes	Upto 25.4 25.4 - 38.1 incl. 38.1 - 50.8 incl. 50.8 - 63.5 incl. 63.5 - 73.2 incl. 76.2 - 101.6 incl.	0.1016 0.1524 0.2032 0.2540 0.3048 0.3810	0.1016 0.1524 0.2032 0.2540 0.3048 0.3810	+20 +20 +22 +22 +22 +22	-0 -0 -0 -0 -0 -0	3.175 3.175 3.176 3.760 4.760 4.760	0 0 0 0 0 0	Tension Test Flattening Test Hardness Test 100% Hydrostatic Test Refer to ASTM A - 450
ASTM A -268 Seamless & Welded Fentic Stainless Steel Tubes	Upto 12.7 12.7 -38.1 excl. 38.1 -88.9 excl. 88.9 -168.9 excl.	0.13 0.13 0.25 0.38	0.13 0.13 0.25 0.38	+15 +10 +10 +10	-15 -10 -10 -10	3.2 3.2 4.8 4.8	0 0 0 0	Tension Test Flange Test CERW only Hardness Test Reverse Flattering Test 100%Hydrostate Test
ASTM A- 358 For Welded big Diameter Pipes	For all size	+0.5%	0.5%	NO limit	-0.3 mm	Customer's Specification	-	-

Summary of the main ASTM Standards generally used for Sheets / Plates

ASTM	Grade	Chemical requirements percent (%)										Mechanical requirements				
		C max	Mn max	P max	S max	Si max	Ni	Cr.	Mo	Cu	Others	Tensile Strength mini-MPa	Yield Strength mini MPa	Elong mini %	Brinell	Rockwell
A240	304	0.08	2.00	0.045	0.030	0.75	8.00-10.0	18.00-20.0				515	205	40	201	92
	304L	0.03	2.00	0.045	0.030	0.75	8.00-10.0	18.00-20.0			485	170	40	201	92	
	310	0.08	2.00	0.045	0.030	1.50	19.0-22.0	24.0-26.0			515	205	40	217	95	
	316	0.08	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00			515	205	40	217	95
	316L	0.03	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00			485	170	40	217	95
	317L	0.03	2.00	0.045	0.030	0.75	11.0-15.0	18.0-20.0	3.00-4.00			515	205	40	217	95
	321	0.08	2.00	0.045	0.030	0.75	9.00-12.0	17.0-19.0			TP≤ 0.70	515	205	40	217	95
A 387 CLASS 1 CLASS 2	347	0.08	2.00	0.045	0.030	0.75	9.00-13.0	17.0-19.0			Cr≥ 18, Nb≤ 1.10	515	205	40	201	92
	2	0.05-0.21	0.55-0.80	0.035	0.040	0.15-0.40		0.50-0.80	0.45-0.60		Class 1 Class 2	380 486	230 310	22	max201HB	max92HRB
	5	0.15	0.30-0.60	0.04	0.030	0.050		4.00-6.00	0.45-0.65			415 515	205 310	18	max202HB	max92HRB
	7	0.15	0.30-0.60	0.030	0.030	1.00		6.00-8.00	0.45-0.65			415 515	205 310	18	max217HB	max95HRB
	9	0.15	0.30-0.60	0.035	0.030	1.00		8.00-10.0	0.90-1.10			415 515	205 310	18	max217HB	max95HRB
	11	0.04-0.17	0.40-0.65	0.035	0.04	0.50-0.80		1.00-1.50	0.45-0.65			415 515	240 310	22	max217HB	max95HRB
	12	0.04-0.17	0.40-0.65	0.035	0.04	0.15-0.40		0.80-1.15	0.45-0.60			380 450	230 275	22	max217HB	max95HRB
	21	0.04-0.17	0.30-0.60	0.035	0.035	0.50		2.75-3.25	0.90-1.10			415 515	205 310	18	max201HB	max92HRB
	22	0.05-0.17	0.30-0.60	0.035	0.035	0.50		2.00-2.50	0.90-1.10			415 515	205 310	18	max201HB	max92HRB
	55	0.22	0.90	0.035	0.04	0.15-0.40						415 515	205 310	18	max201HB	max92HRB
A 515	60	0.27	0.90	0.035	0.04	0.15-0.40					380-515	205	27			
	65	0.31	0.90	0.035	0.04	0.15-0.40					415-550	220	25			
	70	0.33	1.20	0.035	0.04	0.15-0.40					450-585	240	23			
	55	0.20	0.60-1.20	0.035	0.04	0.15-0.40					485-620	260	21			
	60	0.23	0.85-1.20	0.035	0.04	0.15-0.40					380-515	205	27			
A 516	65	0.26	0.85-1.20	0.035	0.04	0.15-0.40					415-550	202	25			
	70	0.28	0.85-1.20	0.035	0.04	0.15-0.40				450-585	240	23				
A 537	Class 1	0.24	0.70-1.35	0.035	0.040	0.15-0.40	0.25 max	0.80 max	0.35 max		485-620	345	22			
	Class 2	0.24	0.70-1.35	0.035	0.040	0.15-0.40	0.25 max	0.80 max	0.35 max		550-690	415	22			

IS-2062-92 STEEL FOR GENERAL STRUCTURAL PURPOSES

Grade Designation	% Chemical Composition					Tensile Strength (Min) Mpa	Yield Strength (Min) Mpa		% El in Gauge length 5.65 Sc	Bend Test	Std test Piece Charpy V Notch impact Energy Joule min
	C max	Mn max	S max	P max	Si max		20min	20-40min			
A FE410WA	0.23	1.5	0.050	0.050	-	41.8	250	240	23	3t	-
B FE410WB	0.22	1.5	0.045	0.045	0.40	41.8	250	230	23	t<25mm	2t for 27 3t for t>25mm
C FE410WC	0.20	1.5	0.040	0.040	0.40	41.8	250	230	23	2t	27

IS-2002-62 STEEL PLATES FOR BOILERS

Designation	C max	Chemical Composition				Tensile Test			Elongation %min
		Si max	P max	S max	Tensile strength Mpa	Yield Strength Mpa	Test Piece		
IS 2002-1	0.18	0.10-0.35	0.040	0.040	362-442	540	5.65 / Sc 4 / Sc	26 30	
IS 2002-2A	0.20	0.10-0.35	0.050	0.050	412-491	491	5.60 / Sc 4 / Sc	25 29	
IS 2002-2B	0.22	0.10-0.35	0.050	0.050	510-608	491	5.65 / Sc 4 / Sc	20 24	

Formula - Weight of Stainless Steel Sheets/Plates = Length (mm) x Width (mm) x Thickness (mm) x 7.86 = Kg/ Sheet.

PIPE & TUBES / ASTM / API / BS / DIN / IS

PIPE SPECIFICATION	CHEMICAL PROPERTIES							MECHANICAL PROPERTIES				OTHERS
	C%	Mn%	P% (Max)	S% (Max)	Cr%	Ni%	Mo%	U.T.S. (Min) Mpa	Y.S. (Min) Mpa	ELONG. (Min) L	T	
API 5L Gr. A	0.22 Max	0.90 Max	0.030	0.030	-	-	-	331	207	e=625 000 A ^{0.2} / U ^{0.9}	For Seamless c% will be 0.028 for Gr. B to x 70 Mn% will be 1.40 for Gr. x65 to x 70	
API 5L Gr. B	0.26 Max	1.20 Max	0.030	0.030	-	-	-	414	241			
API 5L Gr. X 42	0.26 Max	1.30Max	0.030	0.030	-	-	-	414	290			
API 5L Gr. X 46	0.26 Max	1.40 Max	0.030	0.030	-	-	-	434	317			
API 5L Gr. X 52	0.26 Max	1.40 Max	0.030	0.030	-	-	-	455	359			
API 5L Gr. X 56	0.26 Max	1.40 Max	0.030	0.030	-	-	-	490	386			
API 5L Gr. X 60	0.26 Max	1.45 Max	0.030	0.030	-	-	-	517	414			
API 5L Gr. X 65	0.26 Max	1.65 Max	0.030	0.030	-	-	-	531	448			
API 5L Gr. X 70	0.26 Max	1.65 Max	0.030	0.030	-	-	-	565	483			
BS 3059 PT-I Gr. 320	0.16 Max	0.30-0.70	0.040	0.040	0.35 Max	-	-	320-480	195			25
BS 3059 PT-II Gr. 360	0.17 Max	0.40-0.80	0.035	0.035	0.10-0.35	-	-	360-500	235			24
BS 3059 PT-II Gr. 440	0.12-0.18	0.90-1.20	0.035	0.035	0.10-0.35	-	-	440-580	245			21
BS 3059 PT-I Gr. 620	0.10-0.15	0.40-0.70	0.030	0.030	0.70-0.10	0.45-0.65	-	460-610	180			22
BS 6323 Gr. 1	0.13 Max	0.60Max	0.050	0.050	-	-	-	300	200			20
BS 6323 Gr. 2	0.16 Max	0.70 Max	0.050	0.050	-	-	-	340	250			15
BS 6323 Gr. 3	0.20 Max	0.90 Max	0.050	0.050	0.35 Max	-	-	400	300			12
BS 1387	0.20 Max	1.20Max	0.045	0.045	-	-	-	320-460	195			20
DIN 17175 Gr. St. 35.8	0.17 Max	0.40-0.80	0.040	0.040	0.10-0.35	-	-	225	360-480			25
DIN 17175 Gr. St. 45.8	0.21 Max	0.40-1.20	0.040	0.040	0.10-0.35	-	-	245	410-530			21
DIN 17175 Gr. 17Mn4	0.14-0.20	0.90-1.20	0.040	0.040	0.20-0.40	0.30 Max	-	275	460-580			23
DIN 17175 Gr. 19Mn5	0.17-0.22	1.00-1.30	0.040	0.040	0.30-0.36	0.30 Max	-	315	510-610	19		
DIN 17175 Gr. 15Mo3	0.12-0.20	0.40-0.80	0.035	0.035	0.10-0.35	-	0.25-0.35	275	550-600	22		
DIN 17175 Gr. 13CrMo44	0.10-0.18	0.40-0.80	0.035	0.035	0.10-0.35	0.70-1.10	0.45-0.65	295	440-590	22		
DIN 17175 Gr. 10CrMo910	0.08-0.15	0.40-0.70	0.035	0.035	0.50 Max	2.00-2.50	0.90-1.20	385	550-600	20		
DIN 17175 Gr. 13CrMo910	0.10-0.18	0.40-0.70	0.035	0.035	0.10-0.35	0.70-1.10	0.45-0.65	295	440-590	22		
DIN 17175 Gr. 14MoV63	0.10-0.18	0.40-0.70	0.035	0.035	0.10-0.35	0.50-0.70	0.50-0.70	325	460-610	20		
DIN 17175 Gr. X20CrMoV121	0.17-0.23	1.00Max	0.030	0.030	0.50 Max	0.80-1.20	0.80-1.20	490	690-850	17		
IS 1239 Part I	-	-	0.050	0.050	-	-	-	320	-	20		
IS 3589 Gr. Fe. 380	0.16 Max	1.20 Max	0.040	0.040	-	-	-	330	195	20		
IS 3589 Gr. Fe 410	0.20 Max	1.30 Max	0.040	0.040	-	-	-	410	235	18		
IS 1979 Gr. YST 290	0.28 Max	1.25 Max	0.040	0.050	-	-	-	410	290			
IS 1979 Gr. YST 320	0.30 Max	1.35 Max	0.040	0.050	-	-	-	430	320			
IS 1979 Gr. YST 360	0.30 Max	1.35 Max	0.040	0.050	-	-	-	450	360			
IS 1979 Gr. YST 390	0.26 Max	1.35 Max	0.040	0.050	-	-	-	490	390			
IS 1979 Gr. YST 410	0.26 Max	1.35 Max	0.040	0.050	-	-	-	520	410			
IS 1979 Gr. YST 450	0.26 Max	1.40 Max	0.040	0.050	-	-	-	530	450			
IS 1979 Gr. YST 480	0.26 Max	1.60 Max	0.040	0.040	-	-	-	565	480			
IS 1978 Gr. YST 210	0.22 Max	0.90Max	0.040	0.050	-	-	-	330	210			
IS 1978 Gr. YST 240	0.27 Max	1.15 Max	0.040	0.050	-	-	-	410	240			

BUTT-WELDING FITTINGS ASTM SPECIFICATION
MATERIAL SPECIFICATION FOR SEAMLESS/WELDED BUTT-WELDING PIPE - FITTINGS.

SPECIFICATION (ASTM-2002)	CHEMICAL PROPERTIES						MECHANICAL PROPERTIES						OTHERS
	C%	Mn%	P% (Max)	S% (Max)	Si%	Cr%	Mo%	Ni%	U.T.S. (Min) Mpa	Y.S. (Min) mpa	ELONG. (Min) L T	Hardness (Max) BHN	
STAINLESS STEEL													
A 403 Gr. WP 304	0.080 Max	2.00 Max	0.045	0.030	1.00 Max	18.0-20.0	-	8.0-10.0	515	205	28	20	-
A 403 Gr. WP 304L	0.030 Max	2.00 Max	0.045	0.030	1.00 Max	18.0-20.0	-	8.0-10.0	485	170	28	20	-
A 403 Gr. WP 304H	0.04-0.10	2.00 Max	0.045	0.030	1.00 Max	18.0-20.0	-	8.0-10.0	515	205	28	20	-
A 403 Gr. WP 304LN	0.030 Max	2.00 Max	0.045	0.030	1.00 Max	18.0-20.0	-	8.0-10.0	515	205	28	20	N%=0.10-0.16
A 403 Gr. WP 309	0.20 Max	2.00 Max	0.045	0.030	1.00 Max	22.0-24.0	-	12.0-15.0	515	205	28	20	-
A 403 Gr. WP 310S	0.080 Max	2.00 Max	0.045	0.030	1.00 Max	24.0-26.0	-	19.0-22.0	515	205	28	20	-
A 403 Gr. WP 316	0.080 Max	2.00 Max	0.045	0.030	1.00 Max	16.0-18.0	2.0-3.0	10.0-14.0	515	205	28	20	-
A 403 Gr. WP 316L	0.030 Max	2.00 Max	0.045	0.030	1.00 Max	16.0-18.0	2.0-3.0	10.0-14.0	485	170	28	20	-
A 403 Gr. WP 316H	0.04-0.10	2.00 Max	0.045	0.030	1.00 Max	16.0-18.0	2.0-3.0	10.0-14.0	515	205	28	20	-
A 403 Gr. WP 316LN	0.030 Max	2.00 Max	0.045	0.030	1.00 Max	16.0-18.0	2.0-3.0	10.0-13.0	515	205	28	20	N%=0.10-0.16
A 403 Gr. WP 317	0.080 Max	2.00 Max	0.045	0.030	1.00 Max	18.0-20.0	3.0-4.0	11.0-15.0	515	205	28	20	-
A 403 Gr. WP 317L	0.030 Max	2.00 Max	0.045	0.030	1.00 Max	18.0-20.0	3.0-4.0	11.0-15.0	515	205	28	20	-
A 403 Gr. WP 321	0.080 Max	2.00 Max	0.045	0.030	1.00 Max	17.0-19.0	-	9.0-12.0	515	205	28	20	TT%=(5XC)-0.70
A 403 Gr. WP 321H	0.04-0.10	2.00 Max	0.045	0.030	1.00 Max	17.0-19.0	-	9.0-12.0	515	205	28	20	TT%=(4XC)-0.70
A 403 Gr. WP 347	0.080 Max	2.00 Max	0.045	0.030	1.00 Max	17.0-19.0	-	9.0-12.0	515	205	28	20	Cb%=(10XC)-1.10
A 403 Gr. WP 347H	0.04-0.10	2.00 Max	0.045	0.030	1.00 Max	17.0-19.0	-	9.0-12.0	515	205	28	20	Cb%=(6XC)-1.10
CARBON STEEL													
A 234 Gr. WPB	0.30 Max	0.29-1.06	0.050	0.058	0.10 Min	0.40 Max	0.15 Max	0.40 Max	415-655	240	30	20	197 Cb%≤0.40Max, Vb%≤0.08Max, Cb%≤0.02Max
A 234 Gr. WPC	0.35 Max	0.29-1.06	0.050	0.058	0.10 Min	0.40 Max	0.15 Max	0.40 Max	485-655	275	30	20	197 Cb%≤0.40Max, Vb%≤0.08Max, Cb%≤0.02Max
LOW TEMPERATURE CARBON STEEL													
A 420 Gr. WPL6	0.30 Max	0.50-1.35	0.035	0.040	0.15-0.40	0.30 Max	0.12 Max	0.40 Max	415-655	240	30	16.5	197 Cb%≤0.40 Max, Vb%≤0.08 Max, Cb%≤0.02 Max Impact Test=50C JF17.3-3-6
A 420 Gr. WPL3	0.20 Max	0.31-0.64	0.050	0.050	0.13-0.37	-	-	3.20-3.80	450-620	240	30	20	197 Impact Test=50C JF17.3-3-6
ALLOY STEEL													
A 234 Gr. WP 1	0.28 Max	0.30-0.90	0.045	0.045	0.10-0.50	-	0.44-0.65	-	380-550	205	30	20	197
A 234 Gr. WP 5	0.15 Max	0.30-0.60	0.040	0.030	0.50 Max	4.0-6.0	0.44-0.65	-	415-585	205	30	20	217
A 234 Gr. WP 9	0.15 Max	0.30-0.60	0.030	0.030	1.00 Max	8.0-10.0	0.90-1.10	-	415-585	205	30	20	217
A 234 Gr. WP 11 CL1	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.0	1.0-1.5	0.44-0.65	-	415-585	205	30	20	197
A 234 Gr. WP 11 CL2	0.05-0.20	0.30-0.80	0.040	0.040	0.50-1.0	1.0-1.5	0.44-0.65	-	485-655	275	30	20	197
A 234 Gr. WP 11 CL3	0.05-0.20	0.30-0.80	0.040	0.040	0.50-1.0	1.0-1.5	0.44-0.65	-	520-690	310	30	20	197
A 234 Gr. WP 12 CL1	0.05-0.20	0.30-0.80	0.045	0.045	0.60 Max	0.80-1.25	0.44-0.65	-	415-585	220	30	20	197
A 234 Gr. WP 12 CL2	0.05-0.20	0.30-0.80	0.045	0.045	0.60 Max	0.80-1.25	0.44-0.65	-	485-655	275	30	20	197
A 234 Gr. WP 22 CL1	0.05-0.15	0.30-0.60	0.040	0.040	0.50 Max	1.90-2.60	0.87-1.13	-	415-585	205	30	20	197
A 234 Gr. WP 22 CL3	0.05-0.15	0.30-0.60	0.040	0.040	0.50 Max	1.90-2.60	0.87-1.13	-	520-690	310	30	20	197
A 234 Gr. WP 91	0.08-0.12	0.30-0.60	0.020	0.010	0.20-0.50	8.0-9.5	0.85-1.05	0.40 Max	585-760	415	20	-	248 Vb%≤0.15, Cb%≤0.08, Ni%≤0.007, As%≤0.04 Max

CHEMICAL COMPOSITION OF MONEL, HASTEALLOY, INCOLOY & INCONEL

U. S. A. / GROSSBRITANNIE U. S. A. / GRANDE-BRETAGNE U. S. A. / GREAT BRITAIN													
Analyse Analyse Composition													
Handelsbezeichnung Designation commercial Commercial designation	C %	Co %	Cr. %	Mo. %	Ni %	V %	W %	Al %	Cu %	Nb/Cb Ta %	Ti %	Fe %	Sonstige Autres-Other %
Monel 400	0.12	-	-	-	65.0	-	-	-	32.0	-	-	1.5	Min 1.0
Monel 401	0.10	-	-	-	43.0	-	-	-	53.0	-	-	0.75	Si 0.25; Min: 2.25
Monel 404	0.15	-	-	-	52.0-57.0	-	-	0.05	Rest/Bal	-	-	0.50	Mn 0.10; Si 0.10; S 0.010
Monel 502	0.10	-	-	-	63.0-70.0	-	-	2.5-3.5	Rest/Bal	-	0.50	2.0	Mn 1.5; Si 0.5; S 0.010
Monel K-500	0.18	-	-	-	64.0	-	-	2.8	30.0	-	0.6	1.0	Mn 0.8
Monel R-405	0.16	-	-	-	66.0	-	-	-	31.0	-	-	1.2	Mn 1.0; S 0.04
Hastalloy B	0.10	1.25	0.60	28.0	Rest/Bal	0.30	-	-	-	-	-	5.50	Mn 0.80; Si 0.70
Hastalloy B2	0.02	1.0	1.0	26.0-30.0	Rest/Bal	-	-	-	-	-	-	2.0	Mn 1.0; Si 0.10
Hastalloy C	0.07	1.25	16.0	17.0	Rest/Bal	0.30	40	-	-	-	-	5.75	Mn 0.80; Si 0.70
Hastalloy C4	0.015	2.0	14.0-18.0	14.0-17.0	Rest/Bal	-	-	-	-	-	0.70	3.0	Mn 1.0; Si 0.08
Hastalloy C276	0.02	2.5	14.0-16.5	15.0-17.0	Rest/Bal	0.35	3.0-4.5	-	-	-	-	4.0-7.0	Mn 1.0; Si 0.08
Hastalloy F	0.02	1.25	22.0	6.5	Rest/Bal	-	0.50	-	-	Nb 2.10	-	21.0	Mn 1.50; Si 0.05
Hastalloy G	0.05	2.5	21.0-23.5	5.5-7.5	Rest/Bal	-	1.0	-	-	Nb 1.75-2.5	-	18.0-21.0	Ma 1.0-2.0, p 0.04 Si 1.0, S 0.03
Hastalloy G-2	0.03	-	23.0-26.0	5.0-7.0	47.0-52.0	-	-	-	0.70-1.50	-	-	Rest/Bal	Mn 1.0; Si 1.0
Hastalloy N	0.06	0.25	7.0	16.5	Rest/Bal	-	0.20	-	0.10	-	-	3.0	Mn 0.40; Si 0.25; B 0.01
Hastalloy S	0.02	2.0	15.5	14.5	Rest/Bal	0.6	1.0	0.20	-	-	-	3.0	Mn 0.50; Si 0.40; B 0.0009; La 0.02
Hastalloy W	0.06	1.25	5.0	24.5	Rest/Bal	-	-	-	-	-	-	5.5	Mn 0.050; Si 0.50
Hastalloy X	0.10	1.5	22.0	9.0	Rest/Bal	-	0.60	-	-	-	18.5	-	Mn 0.050; Si 0.50
Incoloy 800	0.04	-	21.0	-	32.0	-	-	0.3	-	-	0.4	45.0	-
Incoloy 800 H	0.08	-	21.0	-	32.0	-	-	0.3	-	-	0.4	45.0	-
Incoloy 801	0.05	-	20.5	-	32.0	-	-	-	-	-	1.1	45.0	-
Incoloy 802	0.35	-	21.0	-	32.0	-	-	0.6	-	-	0.7	45.0	-
Incoloy 804	0.05	-	29.5	-	41.0	-	-	0.3	-	-	0.6	25.4	-
Incoloy 805	0.12	-	7.5	0.50	36.0	-	-	-	0.10	-	-	Rest/Bal	Mn 0.60; Si 0.50
Incoloy 810	0.25	-	21.0	-	32.0	-	-	-	0.50	-	-	Rest/Bal	Mn 0.90; Si 0.80
Incoloy 825	0.04	-	21.0	3.0	42.0	-	-	-	2.0	-	1.0	30.0	-
Incoloy 825 CP	0.04	-	21.5	3.0	42.0	-	-	-	2.2	-	-	30.0	-
Incoloy 840	0.08	-	20.0	-	20.0	-	-	-	-	Nb 0.9	-	Rest/Bal	Mn 1.0; Si 1.0
Incoloy 901	0.05	-	12.5	6.0	Rest/Bal	-	-	0.15	-	-	2.70	34.0	Mn 0.24; Si 0.12; B 0.15
Incoloy 901 Mod	0.05	-	12.5	5.80	Rest/Bal	-	-	-	-	-	2.9	34.0	Mn 0.09; Si 0.08; B 0.15
Incoloy 903	0.02	15.0	-	-	38.0	-	-	0.7	-	Nb 3.0	1.4	41.0	-
Incoloy 904	0.02	14.0	-	-	33.0	-	-	-	-	-	1.7	50.0	-
Incoloy DS	0.06	-	18.0	-	37.0	-	-	-	-	-	-	42.0	Mn 1.0; Si 2.3
Incoloy MA 956	-	-	20.0	-	-	-	-	4.5	-	-	0.5	74.4	Y 2.03-0.5
Incoloy 600	0.05	-	15.5	-	75.0	-	-	-	-	-	-	8.0	-
Incoloy 601	0.05	-	23.0	-	60.0	-	-	1.4	-	-	-	14.0	-
Incoloy 604	0.04	-	15.8	-	Rest/Bal	-	-	-	0.10	Nb 2.0	-	7.20	Mn 0.20; Si 0.20
Inconel 610	0.20	-	15.5	9.0	Rest/Bal	-	-	-	0.10	Nb 1.0	-	9.0	Mn 0.90; Si 2.0
Inconel 617	0.07	12.5	22.0	9.0	54.0	-	-	1.0	-	-	-	-	-
Inconel 625	0.05	-	21.5	9.0	61.0	-	-	0.40	-	-	0.40	2.5	Mn 0.50; Si 0.50
Inconel 671	0.05	-	48.0	-	51.0	-	-	-	-	Nb 3.65	-	-	-
Inconel 700	0.12	28.5	15.0	3.75	46.0	-	-	3.0	0.05	-	0.35	0.70	Mn 0.10; Si 0.30
Inconel 702	0.01	-	15.6	-	Rest/Bal	-	-	3.4	0.10	-	0.70	0.35	Mn 0.05; Si 0.20
Inconel 705	0.30	-	15.5	-	Rest/Bal	-	-	-	0.50	-	-	8.0	Mn 0.90; Si 5.5

STRUCTURAL SECTIONS

BEAMS



PARALLEL FLANGE UNIVERSAL BEAMS: UB SERIES (AS PER BS4-1:2005)

Sl	Section	Size	Unit Weight (Kg/mtr)
1	UB	203 x 133	25.1, 30
2	UB	254 x 146	31.1, 37, 43
3	UB	305 x 165	40.3, 46.1, 54
4	UB	356 x 171	45, 51, 57, 67.1
5	UB	406 x 178	54.1, 60.1, 67.2, 74.2
6	UB	457 x 152	52.3, 59.8, 67.2, 74.2, 82.1
7	UB	457 x 191	67.1, 74.3, 82.0, 89.3, 98.3
8	UB	533 x 210	82.2, 92.1, 101, 109, 122
9	UB	610 x 229	101.2, 113, 125.1, 139.9

PARALLEL FLANGE /BEAMS: NPB SERIES (AS PER IS:12778) AND IPE SERIES (AS PER EN-19-57)

Sl	Section	Size	Unit Weight (Kg/mtr)
1	NPB	100 x55	8.1
2	NPB	120 x 60	10.4
3	NPB	140 x 70	12.9
4	NPB	160 x 80	15.8
5	NPB	180 x 90	15.4, 18.8, 21.3
6	NPB	200 x 100	18.4, 22.4, 25.1
7	NPB	200 x 130	27.2, 32
8	NPB	200 x 110	22.2, 26.2, 29.3
9	NPB	240 x 120	26.1, 30.7, 34.3
10	NPB	270 x 135	30.7, 36.1, 42.3
11	NPB	300 x 150	36.5, 42.2, 49.3
12	NPB	350 x 170	50.2, 57.1, 66
13	NPB	400 x 180	57.4, 66.3, 75.7
14	NPB	450 x 190	67.2, 77.6, 92.4
15	NPB	500 x 200	79.4, 90.7, 107.3
16	NPB	600 x 220	107.6, 122.4, 154.5
17	IPEAA, IPEA, IPE 100		6.7, 6.9, 8.1
18	IPEAA, IPEA, IPE 120		8.4, 8.7, 10.4
19	IPEAA, IPEA, IPE 140		10.1, 10.5, 12.9
20	IPEAA, IPEA, IPE 160		12.1, 12.7, 15.8
21	IPEAA, IPEA, IPE IPEO 180		14.9, 15.4, 18.8, 21.3
22	IPEAA, IPEA, IPE IPEO 200		18, 18.4, 22.4, 25.1
23	IPEAA, IPEA, IPE IPEO 220		21.2, 22.2, 26.2, 29.4
24	IPEAA, IPEA, IPE IPEO 240		24.9, 26.2, 30.7, 34.3
25	IPEAA, IPE IPEO 270		30.7, 36.1, 42.3
26	IPEAA, IPE IPEO 300		36.5, 42.2, 49.3
27	IPEAA, IPE IPEO 330		43, 49.1, 57
28	IPEAA, IPE IPEO 360		50.2, 57.1, 66
29	IPEAA, IPE IPEO 400		57.4, 66.3, 75.7
30	IPEAA, IPE IPEO 450		67.2, 77.6, 92.4
31	IPEAA, IPE IPEO 500		79.4, 90.7, 107
32	IPEAA, IPE IPEO 600		107.6, 122.4, 154.5

PARALLEL FLANGE H BEAMS : WPB SERIES (AS PER IS:12778) AND HE SERIES (AS PER EN-53-62)

Sl	Section	Size	Unit Weight (Kg/mtr)
1	WPB	320 x 300	74.2, 97.6, 127, 245
2	WPB	600 x 300	129, 178, 212, 285
3	WPB	700 x 300	150, 204, 241, 301
4	WPB	800 x 300	172, 224, 262, 317, 373
5	WPB	900 x 300	252, 291, 333
6	HEAA, HEA, HEB, HEM 320		74.2, 97.6, 127, 245
7	HEAA, HEA, HEB, HEM 600		129, 178, 212, 285
8	HEAA, HEA, HEB, HEM 700		150, 204, 241, 301, 373
9	HEAA, HEA, HEB, HEM 800		172, 224, 262, 317
10	HEA, HEB, HEM 900		252, 291, 333

COLUMNS



PARALLEL FLANGE UNIVERSAL COLUMNS; UC SERIES (AS PER BS4-1:2005)

Sl	Section	Size	Weight (Kg/mtr)
1	UC	152 x 152	23, 30, 37
2	UC	203 x 203	46.1, 52, 60, 71, 86
3	UC	254 x 254	73.1, 88.9, 107.1, 132, 167
4	UC	305 x 305	96.9, 117.9, 136.9, 158.1, 198.1, 240, 282.9
5	UC	356 x 368	129, 152.9, 177, 201.9
6	UC	356 x 406	235, 287

CHANNELS



INDIAN STANDARD MEDIUM CHANNELS ; ISMC SERIES (AS PER IS-808)

Sl	Section	Size	Unit Weight (Kg/mtr)
1	ISMC	75 x 40	7.34
2	ISMC	100 x 50	9.56
3	ISMC	125 x 65	13.1
4	ISMC	150 x 75	16.8
5	ISMC	175 x 75	19.6
6	ISMC	200 x 75	22.3
7	ISMC	250 x 80	26.1
8	ISMC	250 x 82	30.6
9	ISMC	300 x 90	36.3
10	ISMC	300 x 92	41.50
11	ISMC	400 x 100	50.1

EQUAL ANGLES



INDIAN STANDARD ANGLES (AS PER IS-808)*

Sl	Section	Size	Thickness (mm)	Unit Weight (Kg/mtr)
1	ISA	45 x 45	3,4,5,6	2.1,2.7, 3.4,4.0
2	ISA	50 x 50	3,4,5,6,8	2.3,3.3,8,4.5,5.8
3	ISA	50 x 55	4,5,6,7	3.3,4.1,4.9,6.4
4	ISA	60 x 60	4,5,6,8	3.7,4.5,5.4,7.0
5	ISA	65 x 65	5,6,8,10	4.0,4.9,5.8,7.7,9.4
6	ISA	70 x 70	5,6,8,10	5.3,6.3,8.3,10.2
7	ISA	75 x 75	5,6,8,10	5.7,6.8,8.9,11
8	ISA	80 x 80	6,8,10	7.3,9.6,11.8,14.0
9	ISA	90 x 90	6,8,10,12	8.2,10.8,13.4,15.8
10	ISA	100 x 100	6,7,8,10,12	9.2,10.7,12.1,14.9,17.7
11	ISA	110 x 110	8,10,12	8,10,12,13.4,16.6,19.7
12	ISA	120 x 120	8,10	14.7,18.2
13	ISA	130 x 130	8,10,12,16	15.9,19.7,23.5,30.7
14	ISA	150 x 150	10,12,14,15,16,18,20	22.9,27.3,33.8,35.8,40.1,44.1
15	ISA	200 x 200	12,16,18,20,24,25	36.9,48.5,54.3,60.7,71.7,73.9
16	ISA	250 x 250	25,28,32,35	93.6,104,118,128

Awards & Certificates :

